Electrolux

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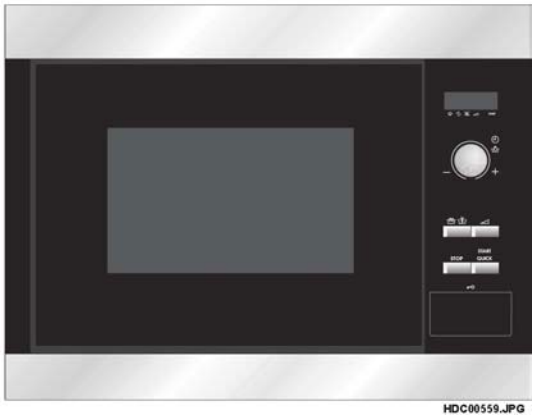
SERVICE MANUAL

MICROWAVE OVENS



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Microwave Oven

(Compact Solo)

MC1751E/MC1761E (EU)
MC1751E/MC1761E (UK)
EMS1750X/EM1760X (UK)
QN4025/QN4026 (SCANDINAVIA)
JMW1051/JMW1061 (A,D)
MOA4217 (D,K)

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TABLE OF CONTENTS

CAUTION, MICROWAVE RADIATION / GENERAL INFORMATION 4

SERVICING 3

PRODUCT SPECIFICATIONS 6

APPEARANCE VIEW 7

OPERATING SEQUENCE 10

FUNCTION OF IMPORTANT COMPONENTS 12

TROUBLESHOOTING CHART 13

TEST PROCEDURE 14

CONTROL PANEL ASSEMBLY 22

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE 24

MICROWAVE MEASUREMENT 30

TEST DATA A GLANCE / WIRING / RE-WIRING 31

SCHEMATIC DIAGRAMS 32

PICTORIAL DIAGRAM 33

CAUTION

CAUTION
MICROWAVE RADIATION

Personnel should not be exposed to the microwave energy which may radiate from the magnetron or other microwave generating devices if it is improperly used or connected. All input and output microwave connections, waveguides, flanges and gaskets must be secured.
Never operate the device without a microwave energy absorbing load attached.
Never look into an open waveguide or antenna while the device is energized.

GENERAL IMPORTANT INFORMATIONS

This Manual has been prepared to provide Service Engineers with Operation and Service Information. It is recommended that service engineers carefully study the entire text of this manual, so they will be qualified to render satisfactory customer service.

WARNING

Note: The parts marked "*" are used at voltage more than 250V. (Schematic Diagrams).

WARNING

Never operate the oven until the following points are ensured.
(A) The door is tightly closed.
(B) The door and oven hinges are not defective.
(C) The door packing is not damaged.
(D) The door is not deformed or warped.
(E) There is not any other visible damage with the oven.

Servicing and repair work must be carried out only by trained Service Engineers.

All the parts marked ”*” on schematic diagrams are used at voltages more
than 250V.

Removal of the outer wrap gives access to potentials above 250V.

All the parts marked "*" on the schematic diagrams may cause undue microwave exposure, by themselves, or when they are damaged, loosened or removed.

SERVICING

WARNING TO SERVICE PERSONNEL

Microwave ovens contain circuitry capable of producing very high voltage and current.
Contact with the following parts will result in electrocution
High voltage capacitor, High Voltage transformer, Magnetron, High voltage rectifier assembly, High voltage wires.

REMEMBER TO CHECK 3D

1) Disconnect the supply.
2) Door opened, and wedged open.
3) Discharge high voltage capacitor.

WARNING AGAINST THE CHARGE OF THE HIGH VOLTAGE CAPACITOR
The high-voltage capacitor remains charged about 60seconds after the oven has been switched off. Wait for 60 seconds and then short-circuit the connection of the high-voltage capacitor (that is, of the connecting lead of the high-voltage rectifier) against the chassis with the use of an insulated screwdriver.

It is recommended that wherever possible fault-finding is carried out with the supply disconnected. It may in, some cases, be necessary to connect the supply after the outer case has been removed, in this event carry out 3D checks and then disconnect the leads to the primary of the power transformer. Ensure that these leads remain isolated from other components and the oven chassis. (Use insulation tape if necessary.) When the testing is completed carry out 3D checks and reconnect the leads to the primary of the power transformer.

REMEMBER TO CHECK 4R

1) Reconnect all leads removed from components during testing.
2) Replace the outer case (cabinet).
3) Reconnect the supply.
4) Run the oven. Check all functions.

Microwave ovens should not be run empty. To test for the presence of microwave energy within a cavity, place a cup of cold water on the oven turntable, close the door and set the power to HIGH and set the microwave timer for two (2) minutes. When the two minutes has elapsed (timer at zero) carefully check that the water is now hot. If the water remains cold carry out 3D checks and re-examine the connections to the component being tested.

When all service work is completed, and the oven is fully assembled, the microwave power output should be checked and a microwave leakage test carried out.

When troubleshooting the microwave oven, it is helpful to follow the Sequence of Operation in performing the checks.
Many of the possible causes of trouble will require that a specific test be performed. These tests are given a procedure letter which will be found in the "Test Procedure" section.

IMPORTANT: If the oven becomes inoperative because of a blown fuse F1 in the monitored latch switch - monitor switch - circuit, check the monitored latch switch and monitor switch and before replacing the fuse F1.

GENERAL INFORMATION

WARNING
THIS APPLIANCE MUST BE EARTHED

IMPORTANT

THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:

GREEN-AND-YELLOW	: EARTH
BLUE	: NEUTRAL
BROWN	: LIVE

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice

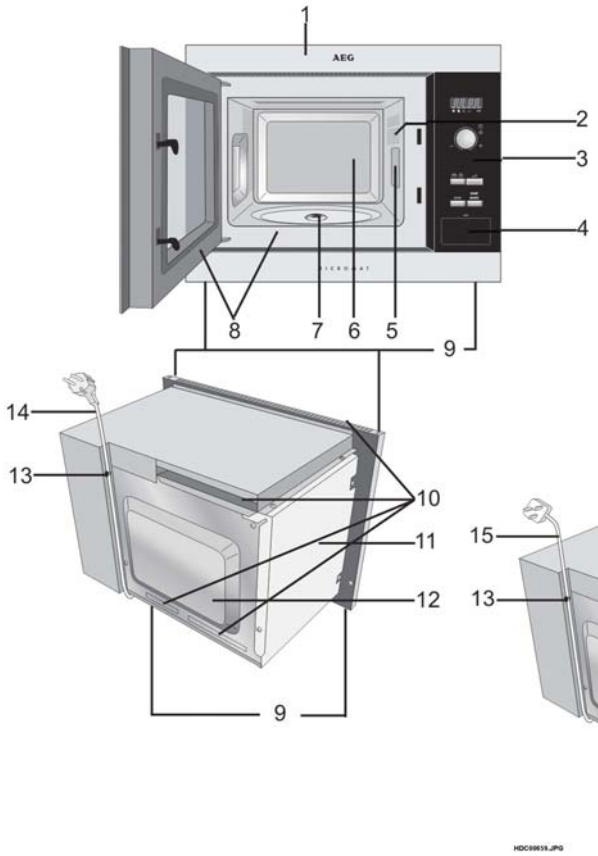
PRODUCT SPECIFICATIONS

SPECIFICATION

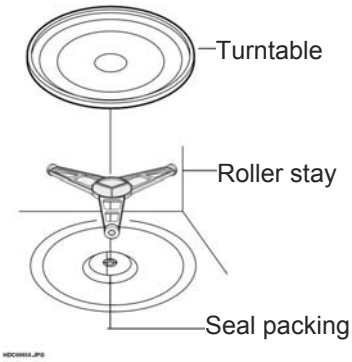
ITEM	DESCRIPTION
Power Requirements	230 Volts(EU)/230-240 Volts(UK) 50 Hertz Single phase, 3 wire earthed
Power Consumption	1.2 kW
Power Output	800W watts nominal of RF microwave energy (measured by way of IEC 60705) Operating frequency of 2450 MHz
Case Dimensions	Width 454mm(including screws) Height 357mm (including foot) Depth 320mm
Cooking Cavity Dimensions	Width 285mm Height 202mm Depth 298mm
Turntable diameter	272mm
Control Complement	Jog/Touch Control System Clock (1.00-12.59 or 0.00-23.59) - 12HR or 24HR setting Microwave Power for Variable Cooking Repetition Rate; HIGH ..... Full power throughout the cooking time MEDIUM HIGH ..... approx. 70% of Full Power MEDIUM ..... approx. 50% of Full Power MEDIUM LOW..... approx. 30% of Full Power LOW ..... approx. 10% of Full Power Stir — **AUTOMATIC** button Turn over — **MICROWAVE POWER LEVEL** button Weight — **STOP** button Microwave power level — **START/QUICK** button Cooking in progress — **TIMER/WEIGHT** knob Stir — **AUTOMATIC** button Turn over — **MICROWAVE POWER LEVEL** button Weight — **STOP** button Microwave power level — **START/ QUICK** button Cooking in progress — **TIMER/WEIGHT** knob
Net weight	Approx, 16kg

APPEARANCE VIEW

OVEN

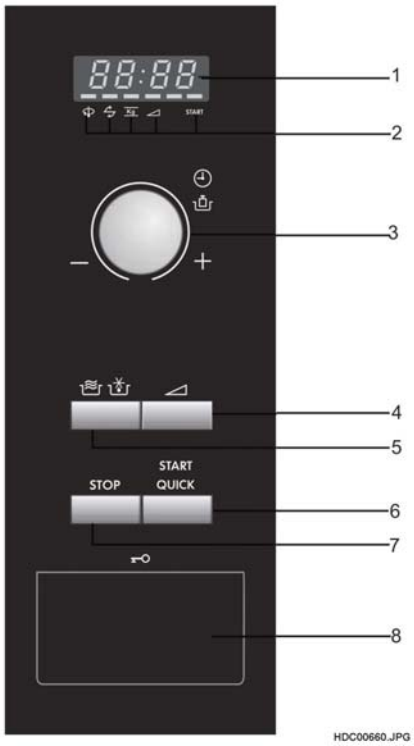


1 Front trim
2 Oven lamp
3 Control panel
4 Door opening button
5 Waveguide cover
6 Oven cavity
7 Seal packing
8 Door seals and sealing surfaces
9 Fixing points (4 points)
10 Ventilation openings
11 Outer cover
12 Rear cabinet
13 Power supply cord support clip
14 Power supply cord (EU)
15 Power supply cord (UK)



1. Place the roller stay on the floor of the oven cavity, engaging shaft into turntable motor shaft.
2. Then place the turntable on roller stay.

CONTROL PANEL
MC1751E/MC1761E/MOA4117



1 **Digital Display**
2 **Indicators**
The appropriate indicator will flash or light up, just above each symbol according to the instruction. When an indicator is flashing, press the appropriate button (having the same symbol) or carry out the necessary operation.

Stir

Turn oven

Kg Weight

Microwave power level

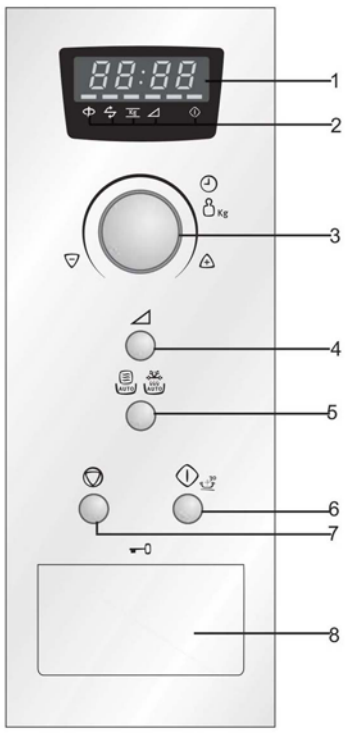
START Cooking in progress

3 TIMER/WEIGHT knob
4 MICROWAVE POWER LEVEL button
5 AUTOMATIC PROGRAMMES button
Press to select one of the 12 automatic programmes.
6 START/QUICK button
7 STOP button
8 DOOR OPEN button

APPEARANCE VIEW

CONTROL PANEL

EMS1750X/EMS1760X



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1 **Digital Display**
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The appropriate indicator will flash or light up, just above each symbol according to the instruction. When an indicator is flashing, press the appropriate button (having the same symbol) or carry out the necessary operation.

Stir

Turn oven

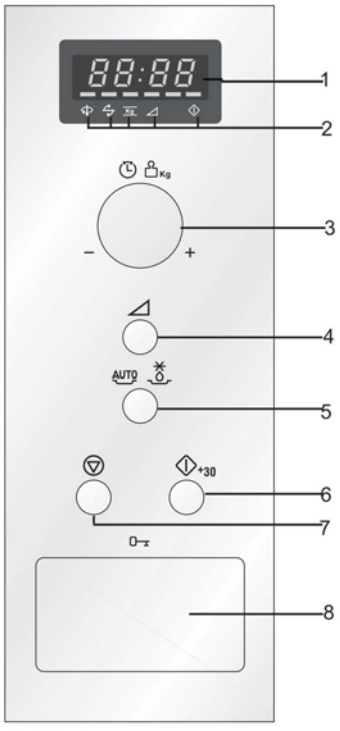
Kg Weight

Microwave power level

Cooking in progress

3 TIMER/WEIGHT knob
4 MICROWAVE POWER LEVEL button
5 AUTOMATIC PROGRAMMES button
Press to select one of the 12 automatic programmes.
6 START/QUICK button
7 STOP button
8 DOOR OPEN button

ZM175ST/ZM176ST



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1 **Digital Display**
2 **Indicators**
The appropriate indicator will flash or light up, just above each symbol according to the instruction. When an indicator is flashing, press the appropriate button (having the same symbol) or carry out the necessary operation.

Stir

Turn oven

Kg Weight

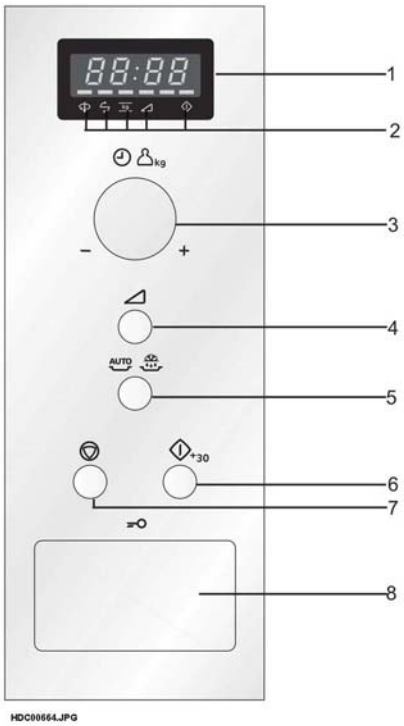
Microwave power level

Cooking in progress

3 TIMER/WEIGHT knob
4 MICROWAVE POWER LEVEL button
5 AUTOMATIC PROGRAMMES button
Press to select one of the 12 automatic programmes.
6 START/QUICK button
7 STOP button
8 DOOR OPEN button

APPEARANCE VIEW

QN4025/QN4026



1 **Digital Display**
2 **Indicators**
The appropriate indicator will flash or light up, just above each symbol according to the instruction. When an indicator is flashing, press the appropriate button (having the same symbol) or carry out the necessary operation.

Stir

Turn oven

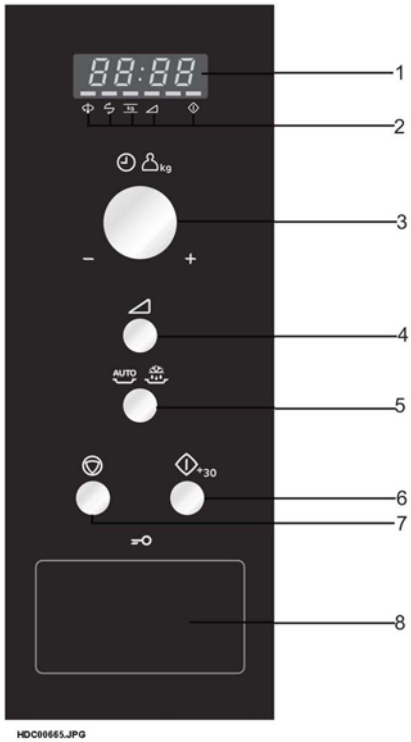
Kg Weight

Microwave power level

Cooking in progress

3 TIMER/WEIGHT knob
4 MICROWAVE POWER LEVEL button
5 AUTOMATIC PROGRAMMES button
Press to select one of the 12 automatic programmes.
6 START/QUICK button
7 STOP button
8 DOOR OPEN button

JMW1051/JMW1061



1 **Digital Display**
2 **Indicators**
The appropriate indicator will flash or light up, just above each symbol according to the instruction. When an indicator is flashing, press the appropriate button (having the same symbol) or carry out the necessary operation.

Stir

Turn oven

Kg Weight

Microwave power level

Cooking in progress

3 TIMER/WEIGHT knob
4 MICROWAVE POWER LEVEL button
5 AUTOMATIC PROGRAMMES button
Press to select one of the 12 automatic programmes.
6 START/QUICK button
7 STOP button
8 DOOR OPEN button

OPERATION SEQUENCE

MICROWAVE OFF CONDITION

Closing the door activates the door interlock switch (monitored latch switch).

IMPORTANT
When the oven door is closed, the monitor switch contacts COM - NC must be open.
When the microwave oven is plugged in a wall outlet (230V/ 230-240v 50Hz), the noise filter is energized.

Figure 0-1 on page 32

NOTE: When the oven door is opened, the oven lamp comes on at this time.

MICROWAVE COOKING CONDITION

HIGH COOKING

Enter a desired cooking time by rotating the time/weight knob
and start the oven by touching START pad.

Figure 0-2 on page 32

CONNECTED COMPONENTS	RELAY
Oven lamp, Turntable motor	RY1
Power transformer	RY3
Fan motor	RY4

1. The line voltage is supplied to the primary winding of the power transformer. The voltage is converted to about 3.3 volts A.C. output on the filament winding and high voltage of approximately 2000 volts A.C. on the secondary winding.
2. The filament winding voltage (3.3 volts) heats the magnetron filament and the high voltage (2000 volts) is sent to the voltage doubling circuit, where it is doubled to negative voltage of approximately 4000 volts D.C..
3. The 2450 MHz microwave energy produced in the magnetron generates a wave length of 12.24 cm. This energy is channelled through the waveguide (transport channel) into the oven cavity, where the food is placed to be cooked.
4. When the cooking time is up, a single tone is heard and the relays RY1 + RY3 + RY4 go back to their home position. The circuits to the oven lamp, power transformer, fan motor and turntable motor are cut off.
5. When the door is opened during a cook cycle, the switches come to the following condition.

SWITCH	CONTACT	CONDITION DURING COOKING	CONDITION DOOR OPEN (NO COOKING)
Monitor switch	COM-NC	Open	Closed
	COM-NO	Closed	Open
Monitored latch switch	COM-NO	Closed	Open
Stop switch	COM-NO	Closed	Open

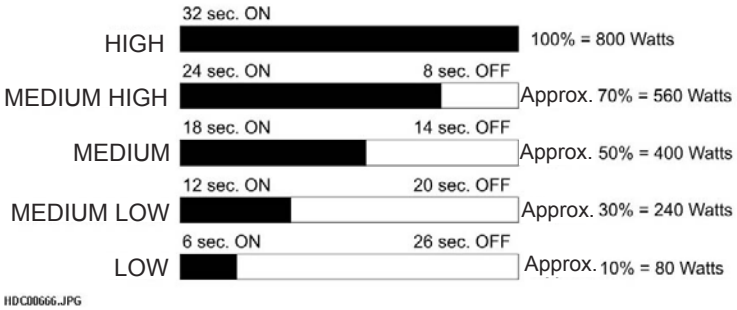
The circuits to the power transformer, fan motor and turntable motor are cut off when the monitored latch switch is opened. The oven lamp remains on even if the oven door is opened after the cooking cycle has been interrupted, because the relay RY1 stays closed. Shown in the display is the remaining time.

6. MONITOR SWITCH CIRCUIT
   The monitor switch (SW2) is mechanically controlled by oven door, and monitors the operation of the monitored latch switch (SW1)
   6-1 When the oven door is opened during or after the cycle of a cooking program, the monitored latch switch (SW1)and stop switch (SW3) must open their contacts(COM-NO) first. After that the contacts (COM - NC) of the monitor switch (SW2) can be closed.
   6-2 When the oven door is closed, the contacts (COM - NC) of the monitor switch (SW2) must be opened first. The contacts (COM - NO) of the monitored latch switch (SW1) and stop switch (SW3) are closed after.
   6-3 When the oven door is opened and the contacts of the monitored latch switch (SW1) remain closed, the fuse F1 will blow, because the monitor switch is closed and a short circuit is caused.

OPERATION SEQUENCE

HIGH, MEDIUM HIGH, MEDIUM, MEDIUM LOW, LOW COOKING

When the microwave oven is preset for variable cooking power, the line voltage is supplied to the power transformer intermittently within a 32-second time base through the vary contact. The following levels of microwave power are given.
SETTING



NOTE: The ON/OFF time ratio does not exactly correspond to the percentage of microwave power, because approx. 3 seconds are needed for heating up the magnetron filament.

FUNCTION OF IMPORTANT COMPONENTS

DOOR OPEN MECHANISM
The door can be opened by pushing the door open button.

MONITORED LATCH SWITCH (SW1)
1. When the oven door is closed, the contacts (COM - NO) must be closed.
2. When the oven door is opened, the contacts (COM - NO) must be opened.

MONITOR SWITCH (SW2)
1. When the oven door is closed, the contacts (COM - NC) must be opened.
2. When the oven door is opened, the contacts (COM - NC) must be closed.
3. If the oven door is opened and the contacts (COM - NO) of the monitored latch switch (SW1) fail to open, fuse F8A blows simultaneously with closing the contacts (COM - NC) of the monitor switch (SW2).

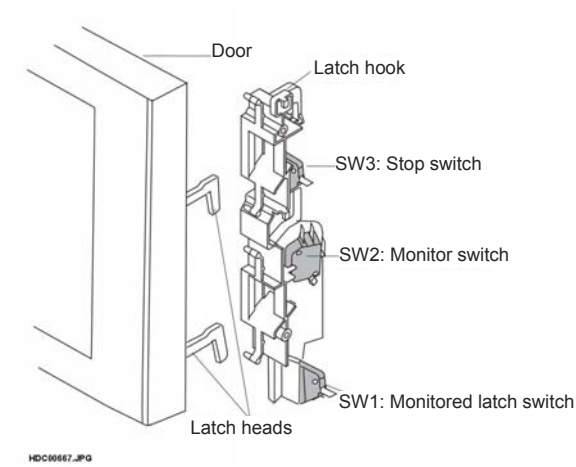


Figure D-1. Door Open Mechanism

STOP SWITCH (SW3)
1. When the oven door is closed, the contacts (COM - NO)must be closed.
2. When the oven door is opened, the contacts (COM - NO) must be opened.

CAUTION: BEFORE REPLACING A BLOWN FUSE (F1) TEST THE MONITORED LATCH SWITCH (SW1) AND MONITOR SWITCH (SW2) FOR PROPER OPERATION. (REFER TO CHAPTER "TEST PROCEDURE".)

FUSE F1
1. The fuse F1 also blows when the H.V. rectifier, H.V. wire harness, H.V. capacitor, magnetron or secondary winding of power transformer is shorted.
2. If the wire harness or electrical components are short-circuited, the fuse F1 blows to prevent an electric shock or fire hazard.

THERMAL CUT-OUT 125°C TC01 (OVEN)
The thermal cut-out located on the top of the oven cavity is designed to prevent damage to the oven if the foods in the oven catch fire due to over heating produced by improper setting of cook time or failure of control unit. Under normal operation, the oven thermal cut-out remains closed. However, when abnormally high temperatures are reached within the oven cavity, the oven thermal cut-out will open at 125°C, causing the oven to shut down. The defective thermal cut-out must be replaced with a new one.

THERMAL CUT-OUT 125°C TC02 (MG)
This thermal cut-out protects the magnetron against overheat.
If the temperature goes up higher than 125°C because the fan motor is interrupted or the ventilation openings are blocked, the thermal cut-out TC02 will open and line voltage to the high voltage transformer T will cut off and operation of the magnetron MG will be stopped. The defective thermal cut-out must be replaced with a new one.

TURNTABLE MOTOR
The turntable motor drives the turntable roller assembly to rotate the turntable.

FAN MOTOR
The fan motor drives a blade which draws external cool air.
This cool air is directed through the air vanes surrounding the magnetron and cools the magnetron. This air flows through the oven cavity to remove steam and vapours given off from the heating foods. It is then vented through the exhaust air vents at the rear of oven cavity.

NOISE FILTER
The noise filter prevents the radio frequency interference that might flow back in the power circuit.

TROUBLESHOOTING CHART

When troubleshooting the microwave oven, it is helpful to follow the Sequence of Operation in performing the checks. Many of the possible causes of trouble will require that a specific test be performed. These tests are given a procedure letter which will be found in the “Test Procedure” section.

IMPORTANT: If the oven becomes inoperative because of a blown fuse F1. Check the monitored latch switch and monitor switch before replacing the F8A fuse.

TEST PROCEDURE		A	B	C		D	E	E	E	F	F	G	H	I	I	J	J	K	L	M										
CONDITION	PROBLEM	MAGNETRON	HIGH VOLTAGE TRANSFORMER	H.V. RECTIFIER ASSY	H.V. HARNESS	HIGH VOLTAGE CAPACITOR	MONITORED LATCH SWITCH	STOP SWITCH	MONITOR SWITCH	MAG THERMAL CUT-OUT 125°C	THERMAL CUT-OUT 125°C (OVEN)	FUSE F1	NOISE FILTER	TURNTABLE MOTOR	FAN MOTOR	TC TRANSFORMER	CONTROL UNIT	SWITCH UNIT	RELAY RY1,3,4	FOIL PATTERN ON P.W.B.	POWER SUPPLY CORD	SHORTED WIRE HARNESS	OPENED WIRE HARNESS	OVEN LAMP	BLOCKED VENTILATION OPENINGS	WRONG OPERATION	MIS-ADJUSTMENT OF SWITCHES	HOME FUSE OR BREAKER	NO POWER AT WALL OUTLET	BLOKED COOLING FAN
OFF CONDITION	Home fuse blows when power cord is plugged into wall outlet.																				●	●						●		
	"88:88"does not operate in display when power cord is plugged into wall outlet.								●		●		●			●	●			●	●		●					●	●	
	Display does not operate properly when STOP button is touched.							●									●	●									●			
	Oven lamp does not light, when door is opened. (Display operates).							●									●		●			●	●	●						
	Oven does not start when START button is touched.(Display operates).							●									●	●	●				●				●			
COOKING CONDITION	Fan motor does not operate (Oven lamp lights).														●		●		●				●							●
	Turntable motor assembly does not operate (Oven lamp lights).													●			●		●				●							
	Oven or electrical parts does not stop when timer knob is at "0" or STOP button is touched.							●								●			●			●					●			
	Display operates properly but all electrical parts do not operate.																●		●				●							
	Oven goes into cook cycle but shuts down before end of cooking cycle.										●					●	●				●	●			●			●		●
	Oven seems to be operating but little or no heat is produced in oven load (Microwave power control is set at HIGH).	●	●	●	●	●	●		●	●		●					●		●				●				●			
	Oven does not seem to be operating properly during variable cooking condition(Oven operates properly at HIGH).																●		●											
	Fuse F8A blows (F1)	●	●	●	●	●			●			●					●					●					●			

PROCEDURE LETTER	COMPONENT TEST
A	**MAGNETRON TEST**

NEVER TOUCH ANY PART IN THE CIRCUIT WITH YOUR HAND OR AN INSULATED TOOL WHILE THE OVEN IS IN OPERATION.

CARRY OUT 3D CHECK

Isolate the magnetron from high voltage circuit by removing all leads connected to the filament terminal.

To test for an open circuit filament use an ohmmeter to make a continuity test between the magnetron filament terminals, the meter should show a reading of less than 1 ohm.

To test for a short circuit filament to anode condition, connect ohmmeter between one of the filament terminals and the case of the magnetron (ground). This test should be indicated an infinite resistance.
If a low or zero resistance reading is obtained then the magnetron should be replaced.

MICROWAVE OUTPUT POWER (IEC-60705-1988)

The following test procedure should be carried out with the microwave oven in a fully assembled condition (outer case fitted). Microwave output power from the magnetron can be measured by way of IEC 60705. To measure the microwave output power in the microwave oven, the relation of calorie and
watt is used. When P(W) heating works for t(second), approximately
P x t/4.187 calorie is generated. On the other hand, if the temperature of the water with V(ml) rises ΔT (°C) during this microwave heating period, the calorie of the water is V x ΔT.

The formula is as follows;
P x t / 4.187 = V x Δ T P (W) = 4.187 x V x ΔT / t
Our condition for water load is as follows:
Room temperature.....around 20°C
Power supply Voltage.....Rated voltage
Water load.....1000 g
Initial temperature.....10 ± 2°C
Heating time....52 + 3 = 55 sec.
P = 80 x ΔT

Measuring condition:
1. Container
   The water container must be a cylindrical borosilicate glass vessel having a maximum material thickness of 3 mm and an outside diameter of approximately 190 mm.
2. Temperature of the oven and vessel
   The oven and the empty vessel are at ambient temperature prior to the start of the test.
3. Temperature of the water
   The initial temperature of the water is (10 ± 2)°C.
4. Select the initial and final water temperature so that the maximum difference between the final water temperature and the ambient temperature is 5K.
5. Select stirring devices and measuring instruments in order to minimize addition or removal of heat.
6. The graduation of the thermometer must be scaled by 0.1°C at minimum and an accurate thermometer.
7. The water load must be (1000 ± 5) g.
8. “t” is measured while the microwave generator is operating at full power.
   Magnetron filament heat-up time is not included.

NOTE: The operation time of the microwave oven is "t + 3" sec. 3 seconds are needed for magnetron filament heat-up time.

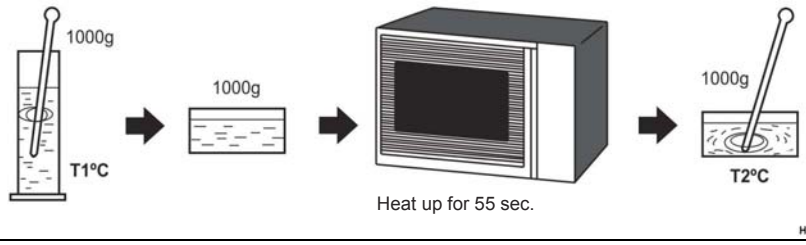
Measuring method:

1. Measure the initial temperature of the water before the water is added to the vessel.
   (Example: The initial temperature T1 = 11°C)
2. Add the 1 litre water to the vessel.
3. Place the load on the centre of the turntable.
4. Operate the microwave oven at HIGH for the temperature of the water rises by a value Δ T of (10 ± 2) K.
5. Stir the water to equalize temperature throughout the vessel.
6. Measure the final water temperature. (Example: The final temperature T2 = 21°C)
7. Calculate the microwave power output P in watts from above formula.

Initial temperature T1 = 11°C
Temperature after (52+ 3) = 55 sec..... T2 = 21°C
Temperature difference Cold-Warm..... ΔT1 = 10°C
Measured output power
The equation is "P = 80 x ΔT" ..... P = 80 x 10°C = 800Watts

JUDGEMENT: The measured output power should be at least ± 15 % of the rated output power.

CAUTION: 1°C CORRESPONDS TO 80 WATTS. REPEAT MEASUREMENT IF THE POWER IS INSUFFICIENT.



B POWER TRANSFORMER TEST

WARNING: High voltages and large currents are present at the secondary winding and filament winding of the power transformer. It is very dangerous to work near this part when the oven is on. NEVER make any voltage measurements of the high-voltage circuits, including the magnetron filament.

CARRY OUT 3D CHECKS

Disconnect the leads to the primary winding of the power transformer. Disconnect the filament and secondary winding connections from the rest of the HV circuitry. Using an ohmmeter, set on a low range, it is possible to check the continuity of all three windings. The following readings should be obtained:-

a. Primary winding ..... 2 ohms approximately
b. Secondary winding ..... 160 ohms approximately
c. Filament winding ..... less than 1 ohm

If the reading obtained are not as stated above, then the power transformer is probably faulty and should be replaced.

CARRY OUT 4R CHECKS

PROCEDURE LETTER	COMPONENT TEST

C HIGH VOLTAGE RECTIFIER ASSEMBLY TEST

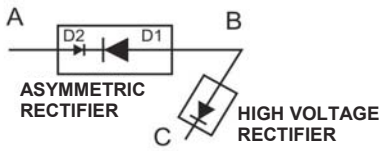
CARRY OUT 3D CHECKS.

Isolate the high voltage rectifier assembly from the HV circuit. The high voltage rectifier can be tested using an ohmmeter set to its highest range. Connect the ohmmeter across the terminal B+C of the high voltage rectifier and note the reading obtained. Reverse the meter leads and note this second reading. The normal resistance is infinite in one direction and more than 100 kΩ in the other direction.

CARRY OUT 4R CHECKS

ASYMMETRIC RECTIFIER TEST

CARRY OUT 3D CHECKS.



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Isolate the high voltage rectifier assembly from the HV circuit. The asymmetric rectifier can be tested using an ohmmeter set to its highest range across the terminals A+B of the asymmetric rectifier and note the reading obtained. Reverse the meter leads and note this second reading. If an open circuit is indicated in both direction then the asymmetric rectifier is good. If an asymmetric rectifier is shorted in either direction, then the asymmetric rectifier is probably faulty and must be replaced. When the asymmetric rectifier is defective, check whether magnetron, high voltage rectifier, high voltage wire or filament winding of the power transformer is shorted.

CARRY OUT 4R CHECKS

NOTE: FOR MEASUREMENT OF THE RESISTANCE OF THE RECTIFIER, THE BATTERIES OF THE MEASURING INSTRUMENT MUST HAVE A VOLTAGE OF AT LEAST 6 VOLTS, BECAUSE OTHERWISE AN INFINITE RESISTANCE MIGHT BE SHOWN IN BOTH DIRECTIONS.

D HIGH VOLTAGE CAPACITOR TEST

CARRY OUT 3D CHECKS

A. Isolate the high voltage capacitor from the circuit.
B. Continuity check must be carried out with measuring instrument which is set to the highest resistance range.
C. A normal capacitor shows continuity for a short time (kick) and then a resistance of about 10 MΩ after it has been charged.
D. A short-circuited capacitor shows continuity all the time.
E. An open capacitor constantly shows a resistance about 10 MΩ because of its internal 10 MΩ resistance.
F. When the internal wire is opened in the high voltage capacitor, the capacitor shows an infinite resistance.
G. The resistance across all the terminals and the chassis must be infinite when the capacitor is normal.

If incorrect reading are obtained, the high voltage capacitor must be replaced.

CARRY OUT 4R CHECKS

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST

E SWITCH TEST

CARRY OUT 3D CHECKS.

Isolate the switch to be tested and using an ohmmeter check between the terminals as described in the following table.

Table: Terminal Connection of Switch

Plunger Operation	COM to NO	COM to NC
Released	Open circuit	Short circuit
Depressed	Short circuit	Open Circuit

COM; Common terminal
NO; Normally open terminal
NC; Normally close terminal

If incorrect readings are obtained, replace the switch.

CARRY OUT 4R CHECKS.

F THERMAL CUT OUT TEST

CARRY OUT 3D CHECKS

Disconnect the leads from the terminals of the thermal cut-out. Then using an ohmmeter, make a continuity test across the two terminals as described in the below.

CARRY OUT 4R CHECKS

Table: Thermal Cut-out Test

Parts Name	Temperature of "ON" condition (closed circuit). (°C)	Temperature of "OFF" condition (open circuit). (°C)	Indication of ohmmeter (When room temperature is approx. 20°C.)
Thermal cut-out 125°C TC01	This is not reset able type	Above 125°C	Closed circuit
Thermal cut-out 125°C TC02	This is not reset able type	Above 125°C	Closed circuit

If incorrect readings are obtained, replace the thermal cut-out.
An open circuit thermal cut-out (MG) TC02 indicates that the magnetron has overheated, this may be due to restricted ventilation, cooling fan failure.
An open circuit thermal cut-out (OVEN) TC01 indicates that the oven cavity has overheated, this may be due to no load operation.

G BLOWN FUSE F8A (F1)

CARRY OUT 3D CHECKS
If the fuse F8A (F1) is blown when the door is opened, check the primary latch switch, monitor switch and monitor resistor.

If the fuse F8A (F1) is blown by incorrect door switching replace the defective switch(es) and the fuse F8A (F1).

CARRY OUT 4R CHECKS

CAUTION: Only replace fuse with the correct value replacement.

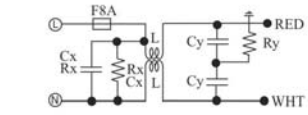
TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST

H NOISE FILTER TEST

CARRY OUT 3D CHECKS

Disconnect the leads from the terminals of the noise filter.
Using an ohmmeter, check between the terminals as described in the following table.



Rx ±5%	L(min)	Cx±20%	Cy ±20%	Ry ±5%
680k*	1.0mH	0.22µF	0.0033µF	10M*

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MEASURING POINTS	INDICATION OF OHMMETER
Between N and L	Open circuit
Between terminal N and WHITE	Short circuit
Between terminal L and RED	Short circuit

If Incorrect readings are obtained, replace the noise filter unit.

CARRY OUT 4R CHECKS

I MOTOR WINDING TEST

CARRY OUT 3D CHECKS.
Disconnect the leads from the motor. Using an ohmmeter, check the resistance between the two terminals as described in the table below.

Table: Resistance of Motor

Motors	Resistance
Fan motor	Approximately 290 Ω
Turntable motor	Approximately 12 - 15 kΩ

If incorrect readings are obtained, replace the motor.
CARRY OUT 4R CHECKS.

LIVE TEST FOR MOTOR WINDING

CAUTION: The following procedure requires the oven to be connected to the supply and should only be used if the relevant "cold" checks for the motor under test are inconclusive.

1. CARRY OUT 3D CHECKS.
2. Disconnect the leads from the primary of the high voltage transformer. Make sure that the leads remain isolated from other oven components and chassis (Use insulation tape if necessary) (See the pictorial diagram page 33).
3. Connect the voltmeter, set to 250V AC, across the motor terminals. (Refer to the relevant motor test procedure or pictorial diagram for the correct terminal numbers.)
4. Arrange the meter in a position where it can be read during the test. (Do not touch the meter, meter leads or oven circuitry while the oven is active.)
5. Close the oven door.
6. Set the power level to 800W and set the relevant timer for about three (3) minutes.
7. Note the reading on the meter and carefully observe the motor under test to see if it is turning.
8. CARRY OUT 3D CHECKS.
9. Remove the test meter leads.
10. Reconnect the leads to the primary of the high voltage transformer.

PROCEDURE LETTER	COMPONENT TEST

If a reading of the line voltage was obtained (step 7) but the motor was not turning then it is faulty and should be replaced. If the meter indicated that the no supply was present then the winding to the motor should be checked for continuity or other circuit checks should be made, i.e. relays, switches.

J **TOUCH CONTROL PANEL ASSEMBLY TEST**

The touch control panel consists of circuits including semiconductors such as LSI, ICs, etc. Therefore, unlike conventional microwave ovens, proper maintenance can not be performed with only a voltmeter and ohmmeter.
In this service manual, the touch control panel assembly is in three units, Control unit, Switch Unit, and LED Unit. Troubleshooting by unit replacement is described according to the symptoms indicated.
Control Panel.
The following symptoms indicate a defective control unit.

1. Switch Unit. NOTE: Check switch unit lead wire harness connection before replacement.
   The following symptoms indicate a defective switch unit. Replace the switch unit.
   a) When touching the keys, a certain key produces no signal at all.
   b) When touching a key, two figures or more are displayed.
   c) When touching the keys, sometimes a key produces no signal.
2. Control Unit
   The following symptoms indicate a defective control unit. Replace the control unit, perform the switch unit test(Procedure K) to determine if control unit is faulty.

2-1 In connection with keys.
   a) When touching a key, a certain group of keys do not produce a signal.
   b) When touching a key, no keys produce a signal.

2-2. In connection with indicators.
   a) At a certain digit, all or some dots do not light up.
   b) At a certain digit, brightness is low.
   c) Only one indicator does not light up.
   d) The corresponding dots of all digits do not light up; or they continue to light up.
   e) Wrong figure appears.
   f) A certain group of indicators do not light up.
   g) The figure of all digits flicker.
   h) When touching a tact switch, the control unit does not respond.

2-3. Other possible problems caused by defective control unit.
   a) Buzzer does not sound or continues to sound.
   b) Clock does not operate properly.
   c) Cooking is not possible.

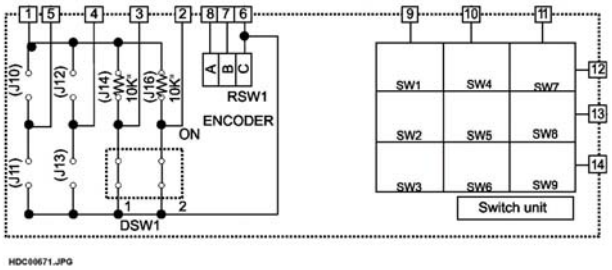
3. LED Unit
   a) No backlight behind display.
   b) Dull backlight behind display.

PROCEDURE LETTER	COMPONENT TEST

K SWITCH UNIT TEST

If the display fails to clear when the STOP key is depressed, first verify the lead wire harness is marking good contact, verify that the stop switch operates properly; that is the contacts are closed when the door is closed and open when the door is open. If the stop switch is good, disconnect the lead wire harness that connects the switch unit to the control unit and make sure the stop switch is closed (either close the door or short the stop switch connecter). Use the switch unit matrix indicated on the switch unit circuit and place a jumper wire between the pins that correspond to the STOP key making momentary contact. If the control unit responds by clearing with a beep the switch unit is faulty and must be replaced. If the control unit does not respond, it is a faulty and must be replaced. If a specific key does not respond, the above method may be used (after clearing the control unit) to determine if the control unit or switch unit is at fault.

	MC1751E/ Mc1761E/ MOA4117	EMS1750X/EMS1760X/ ZM175ST/ZM176ST/ QN4025/QN4026/ JMW1051/JMW1061
SW	USAGE	USAGE
1	Start/Quick	Start/Quick
2	Not Used	Not Used
3	Stop	Stop
4	Power Level	Not Used
5	Not Used	Auto Programs
6	Auto Programs	Not Used
7	Not Used	Not Used
8	Not Used	Power Level
9	Not Used	Not Used



L RELAY TEST

Remove the outer case and check voltage between Pin No 1and Pin No 3 of the 3 pin connector (A) on the control unit with an A.C. voltmeter.
The meter should indicate rated voltage, if not check oven circuit.

RY1,RY3 and RY4 Relay Test
These relays are operated by D.C. voltage
Check voltage at the relay coil with a D.C. voltmeter during the microwave cooking operation.

DC. voltage indicated ..... Defective relay.
DC. voltage not indicated ..... Check diode which is connected to the relay coil. If diode is good, control unit is defective.

RELAY SYMBOL	OPERATIONAL VOLTAGE	CONNECTED COMPONENTS
RY1	Approx. 12.0V D.C.	Oven lamp / Turntable motor
RY3	Approx. 12.0V D.C.	High voltage transformer
RY4	Approx. 12.0V D.C.	Fan motor

PROCEDURE LETTER	COMPONENT TEST

M **PROCEDURES TO BE TAKEN WHEN THE FOIL PATTERN ON THE PRINTED**

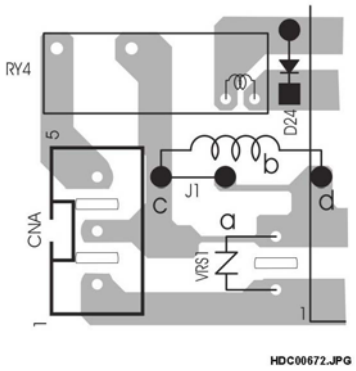
WIRING BOARD (PWB) IS OPEN

To protect the electronic circuits, this model is provided with a fine foil pattern added to the input circuit on the PWB, this foil pattern acts as a fuse. If the foil pattern is open, follow the troubleshooting guide given below for repair.
Problem: POWER ON, indicator does not light up.

STEPS	OCCURRENCE	CAUSE OR CORRECTION
1	The rated AC voltage is not present between Pin No. 5-1 of the 3 pin connector (A)	Check supply voltage and oven power cord.
2	The rated AC voltage is not present at primary side of low voltage transformer.	Low voltage transformer or secondary circuit defective. check and repair.
3	Pattern at "a" and "b" are broken.	*Insert jumper wire J1 and solder. (CARRY OUT 3D CHECKS BEFORE REPAIR)
4	Pattern at "c" and "d" are broken.	*Insert the coil code 5028 24 08-00/9 between "c" and "d (CARRY OUT 3D CHECKS BEFORE REPAIR)

NOTE: *At the time of making these repairs, make a visual inspection of the varistor. Check for burned damage. If any abnormal condition is detected, replace the defective parts.

CARRY OUT 4D CHECKS



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CONTROL PANEL ASSEMBLY

OUTLINE OF CONTROL PANEL

The touch control section consists of the following units as shown in the touch control panel circuit.
(1) Switch Unit
(2) Control Unit
(3) LED Unit

The principal functions of these units and the signals communicated among them are explained below.

Switch Unit
The switch unit is composed of a matrix, signals generated in the LSI are sent to the switch unit through P22, P23 and P24.
When a switch button is touched, a signal is completed through the switch unit and passed back to the LSI through P50 and P51 to perform the function that was requested.

Control Unit
Control unit consists of LSI, power source circuit, relay circuit, back light circuit, synchronizing signal circuit, reset circuit, buzzer circuit, and indicator circuit.

1) LSI
This LSI controls the tact switch strobe signal, relay driving signal, for oven function and indicator signal.

2) Power Source Circuit
This circuit generates voltage necessary in the control unit.

Symbol	Voltage	Application
VC	-5.0V	LSI(IC1)

3) Synchronizing Signal Circuit
The power source synchronizing signal is available in order to compose a basic standard time in the clock circuit. It accompanies a very small error because it works on commercial frequency.

4) ACL Circuit
A circuit to generate a signals which resets the LSI to the initial state when power is supplied.

5) Buzzer Circuit
The buzzer is responsive to signals from the LSI to emit audible sounds (tact switch touch sound and completion sound).

6) Stop Switch
A switch to "tell" the LSI if the door is open or closed.

7) Relay Circuit
To drive the magnetron, fan motor, turntable motor, light the oven lamp.

8) Indicator Circuit
This circuit consists of 4-digits, 12-segments and 3-common electrodes using a Liquid Crystal Display.

9) Encoder
The encoder converts the signal generated by LSI into the pulse signal, and the pulse signal is returned to the LSI.

10) Back Light Circuit
A circuit to drive the back light (Light emitting diodes LD1 - LD3).

LED Unit
A circuit consisting of three light emitting diodes (LD1- LD3)which are driven by the control unit and provide the backlight for the display.

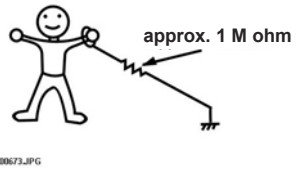
SERVICING

1. Precautions for Handling Electronic Components

This unit uses CMOS LSI in the integral part of the circuits. When handling these parts, the following precautions should be strictly followed. CMOS LSI have extremely high impedance at its input and output terminals. For this reason, it is easily influenced by the surrounding high voltage power source, static electricity charge in clothes, etc. and sometimes it is not fully protected by the built-in protection circuit.

In order to protect CMOS LSI.

1) When storing and transporting, thoroughly wrap them in aluminium foil. Also wrap all PW boards containing them in aluminium foil.
2) When soldering, ground the technician as shown in the figure and use grounded soldering iron and work table.



2. Servicing of Touch Control Panel

We describe the procedures to permit servicing of the touch control panel of the microwave oven and the precautions you must take when doing so. To perform the servicing, power to the touch control panel is available either from the power line of the oven itself or from an external power source.

(1) Servicing the touch control panel with power line of the oven:

CAUTION:
THE HIGH VOLTAGE TRANSFORMER OF THE MICROWAVE OVEN IS STILL LIVE DURING SERVICING AND PRESENTS A HAZARD.

Therefore, before checking the performance of the touch control panel,

1) Disconnect the power supply cord, and then remove outer case.
2) Open the door and block it open.
3) Discharge high voltage capacitor.
4) Disconnect the leads to the primary of the power transformer.
5) Ensure that these leads remain isolated from other components and oven chassis by using insulation tape.
6) After that procedure, re-connect the power supply cord.

After checking the performance of the touch control panel,

1) Disconnect the power supply cord.
2) Open the door and block it open.
3) Re-connect the leads to the primary of the power transformer.
4) Re-install the outer case (cabinet).
5) Re-connect the power supply cord after the outer case is installed.
6) Run the oven and check all functions.

A. On some models, the power supply cord between the touch control panel and the oven itself is so short that the two can't be separated. For those models, check and repair all the controls (sensor-related ones included) of the touch control panel while keeping it connected to the oven.

B. On some models, the power supply cord between the touch control panel and the oven is long enough that they may be separated from each other. For those models, it is possible to check and repair the controls of the touch control panel while keeping it apart from the oven; in this case you must short both ends of the door sensing switch (on PWB) of the touch control panel with a jumper, which activates an operational state that is equivalent to the oven door being closed.

(2) Servicing the touch control panel with power supply from an external power source:

Disconnect the touch control panel completely from the oven, and short both ends of the door sensing switch (SW3: STOP SWITC on PWB) of the touch control panel, which activates an operational state that is equivalent to the oven door being closed. Connect an external power source to the power input terminal of the touch control panel, then it is possible to check and repair the controls of the touch control panel.

3. Servicing Tools

Tools required to service the touch control panel assembly.

1) Soldering iron: 30W
   (It is recommended to use a soldering iron with a grounding terminal.)
2) Others: Hand tools

4. Other Precautions

1) Before turning on the power source of the control unit, remove the aluminium foil applied for preventing static electricity.
2) Connect the connectors of the key unit to the control unit being sure that the lead wires are not twisted.
3) After aluminium foil is removed, be careful that abnormal voltage due to static electricity etc. is not applied to the input or output terminals.
4) Attach connectors, electrolytic capacitors, etc. to PWB, making sure that all connections are tight.
5) Be sure to use specified components where high precision is required.

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

WARNING: Avoid possible exposure to microwave energy. Please follow the instructions below before operating the oven.

1. CARRY OUT 3D CHECKS.
2. Make sure that a definite "click" can be heard when the microwave oven door is unlatched. (Hold the door in a closed position, then push the open button slowly. This causes the latch heads to rise, it is then possible to hear a "click" as the door switches operate.)
3. Visually check the door and cavity face plate for damage (dents, cracks, signs of arcing etc.).

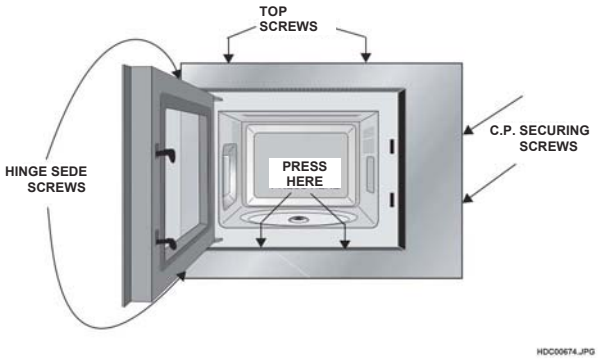
Carry out any remedial work that is necessary before operating the oven.
Do not operate the oven if any of the following conditions exist;
1. Door does not close firmly.
2. Door hinges or latch hook is damaged.
3. The door seal is damaged.
4. The door is bent or warped.
5. There are defective parts in the door interlock system.
6. There are defective parts in the microwave generating and transmission assembly.
7. There is visible damage to the oven.

Do not operate the oven:
1. Without the RF gasket (Magnetron).
2. If the wave guide or oven cavity are not intact.
3. If the door is not closed.
4. If the outer case (cabinet) is not fitted.

Please refer to 'OVEN PARTS, CABINET PARTS, DOOR PARTS', when carrying out any of the following removal procedures:

BUILT IN FRAME ASSEMBLY REMOVAL

To remove the built in frame assembly, proceed as follows.
1. Remove the four screws securing the frame assembly to the oven cavity, (two from the top and two from the hinge side).
2. Remove the two screws securing the frame assembly to the control panel frame (accessed from the back of the frame).
3. Open the oven door fully.
4. Push down the built in frame assembly at the bottom, where it meets the cavity face.
5. Pull the built in frame assembly away from the cavity face
6. Now the built in frame assembly is free.



OUTER CASE REMOVAL

To remove the outer case, proceed as follows.
1. Disconnect oven from power supply.
2. Open door and wedge open.
3. Remove the two screws from the rear intake duct.
4. Slide the rear intake duct up and pull it away from the oven cavity.
5. Remove the screws from the rear(4), along the side edges(4 hinge side, 3 control panel side) and from the top(2 control panel side).
6. Slide the entire case back about 3cm to free it from the retailing clips on the cavity face plate.
7. Lift the entire case from the oven.
8. Discharge the H.V capacitor before carrying any further work.
9. Do not operate the oven with the outer case removed.

CAUTION: DISCHARGE HIGH VOLTAGE CAPACITOR BEFORE TOUCHING ANY OVEN COMPONENTS OR WIRING.

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

HIGH VOLTAGE COMPONENTS REMOVAL (HIGH VOLTAGE CAPACITOR AND HIGH VOLTAGE RECTIFIER ASSEMBLY)

To remove the components, proceed as follows.

1. CARRY OUT 3D CHECKS
2. Disconnect all the leads and terminal of high voltage rectifier from high voltage capacitor.
3. Remove one (1) screw holding earth side terminal of high voltage rectifier, and remove capacitor holder from the base plate.
4. Remove the capacitor from the capacitor holder.
5. Now the high voltage rectifier and capacitor should be free.

CAUTION:	WHEN REPLACING HIGH VOLTAGE RECTIFIER ASSEMBLY, ENSURE THAT THE CATHODE (EARTH) CONNECTION IS SECURELY FIXED TO THE CAPACITOR HOLDER AND BASEPLATE WITH AN EARTHING SCREW.

HIGH VOLTAGE TRANSFORMER REMOVAL

1. CARRY OUT 3D CHECKS
2. Disconnect the filament leads of the power transformer from high voltage capacitor and the magnetron.
3. Disconnect the H.V. secondary wire from the power transformer.
4. Remove the four (4) screws holding the transformer to base plate (from the under side).
5. Remove the transformer from the baseplate by sliding it away from the oven cavity and lifting it.
6. Now, the power transformer is free.

MAGNETRON REMOVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the H.V. wire B and filament lead of the transformer from the magnetron.
3. Move the air intake duct to left.
4. Carefully remove two (2) screws holding magnetron to the waveguide.
5. Remove the magnetron from the waveguide with care so the magnetron antenna is not hit by any metal object around the antenna.

CAUTION:	WHEN REPLACING THE MAGNETRON, BE SURE THE R.F. GASKET IS IN PLACE AND THE MAGNETRON MOUNTING SCREWS ARE TIGHTENED SECURELY. REINSTALL THE MAGNETRON TO WAVE GUIDE FLANGE WITH THE TWO (2) SCREWS **DIAGONALLY**. ENSURE THE MAGNETRON WIRING IS REFITTED IN ACCORDANCE WITH THE PICTORIAL DIAGRAM ON PAGE 33 (FA AND F).

CONTROL PANEL ASSEMBLY REMOVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the main wire harness from the control panel.
3. Remove the one (1) screw holding the control panel to the oven cavity.
4. Lift the control panel assembly and pull it forward. Now, the control panel assembly is free.

TURNTABLE MOTOR REMOVAL

1. Disconnect the oven from the power supply.
2. Remove the turntable motor cover by snipping off the material in four corners.
3. Where the corners have been snipped off bent corner areas flat. No sharp edge must be evident after removal of turntable motor cover.
4. Disconnect the wire leads from the turntable motor and remove the one (1) screw holding the turntable motor.
5. Turntable motor is now free.
6. After replacement use one (1) screw to fit the turntable motor cover.(code 5028 05 76-00/5).

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

FAN MOTOR REPLACEMENT

REMOVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the wire leads from the fan motor.
3. Remove the two (2) screws holding the fan motor to the oven cavity back plate. The fan motor is now free.
4. Remove the fan blade from the fan motor shaft according to the following procedure.

1) Hold the edge of the rotor of the fan motor by using a pair of groove joint pliers.

CAUTION:

- **Make sure that any pieces do not enter the gap between the rotor and the stator of the fan motor.**
  Because the rotor is easy to be shaven by pliers and metal pieces may be produced.
- **Do not let the pliers touch the coil of the fan motor because the coil may be cut or damaged.**
- **Do not distort the bracket by touching with the pliers.**

2) Remove the fan blade from the shaft of the fan motor by pulling and rotating the fan blade with your hand.
3) Now, the fan blade will be free.

CAUTION:

- **Do not use this removed fan blade again. Because the hole (for shaft) of it may become bigger than a standard one.**

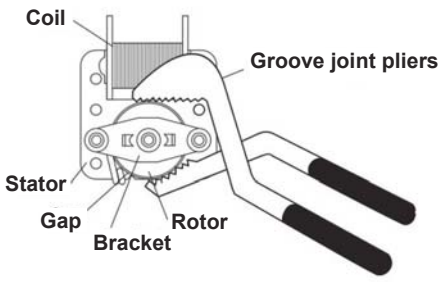
INSTALLATION

1. Install the fan blade to the fan motor shaft according to the following procedure.
   1) Hold the centre of the bracket which supports the shaft of the fan motor on a flat table.
   2) Install the fan blade to the shaft of fan motor by pushing the fan blade with a small, light weight, ball peen hammer or rubber mallet.

CAUTION:

- **Do not hit the fan blade when installing because the bracket may be deformed.**
- **Make sure that the fan blade rotates smoothly after installation.**
- **Make sure that the axis of the shaft is not slanted.**

2. Install the fan motor to the oven cavity back plate with the two (2) screws.
3. Re-connect the wire leads to the fan motor, referring to the pictorial diagram.



Rear view

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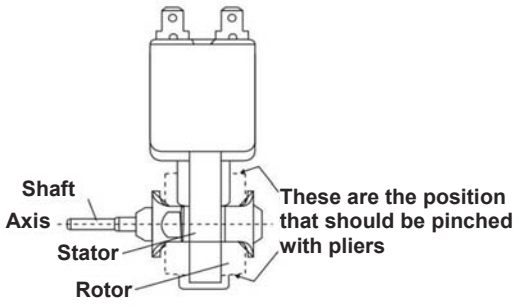

Side view

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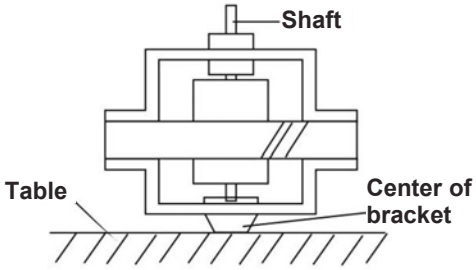

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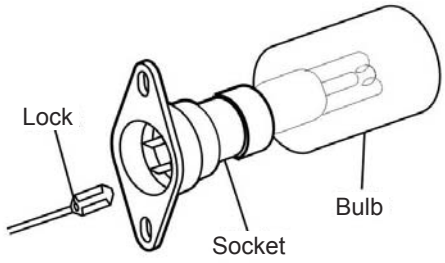
COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

OVEN LAMP REMUVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the wire lead from the oven lamp
3. Lift up the oven lamp from the clips of the air intake duct.
4. Now, the oven lamp is free.



Oven lamp

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POWER SUPPLY CORD REPLACEMENT

Removal

1. CARRY OUT 3D CHECKS.
2. Remove the wiring of the main harness from the noise filter.
3. Remove the two (2)screws securing the N.F.U. holder to the baseplate.
4. Remove the one(1) screw holding the green/yellow (earth wire) to the N.F.U. holder assembly.
5. Release the power supply cord stopper from the N.F.U. holder assembly by sliding it out.
6. Remove the wiring of the power cord from the noise filter.
7. Now the power supply cord is free.

Re-install

1. Insert the moulding cord stopper of power supply cord into the cut-out of the N.F.U. holder assembly, referring to the Figure C-1(b). Installation of Power supply cord.
2. Install the earth wire lead of power supply cord to the N.F.U. holder assembly with one (1) screw and tighten.
3. Connect the brown and blue wire leads of power supply cord to the noise filter correctly, referring to the Pictorial Diagram.C-1(a)
4. Re-fit the N.F.U. holder assembly to the base plate with the two (2) screws.
5. Connect the main harness wiring to the noise filter correctly, referring to the Pictorial Diagram(figure C - 1(a)).

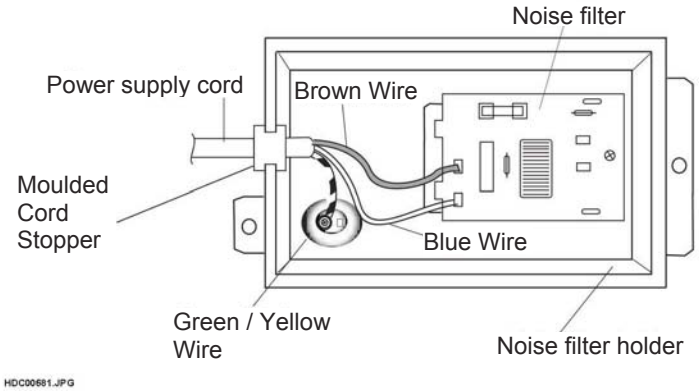

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Figure C-1 (a) Replacement of Power Supply Cord

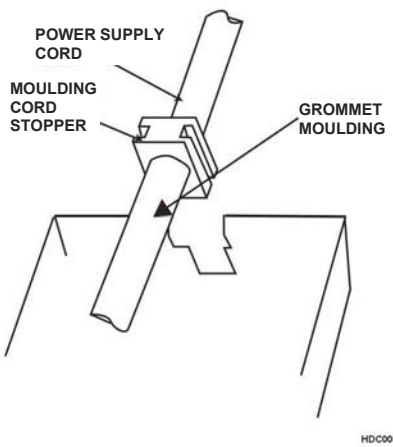

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Figure C-1 (b). Installation of Power Supply Cord

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

MONITORED LATCH SWITCH, MONITOR SWITCH AND STOP SWITCH REMOVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the wire leads from the switches and control panel.
3. Remove the control panel assembly from the oven cavity front flange. Referring to chapter "CONTROL PANEL ASSEMBLY REMOVAL".
4. Remove the one (1) screw holding the latch hook to the oven flange.
5. Remove the latch hook assembly from the oven flange.
6. To remove the switch.

6-1. With pushing outward on the tab that is holding the switch, turn the switch so that the post is an axis.(Monitor Switch).
With pushing outward on the tab that is holding the switch, slide the switch out of the latch hook.(Stop Switch and Monitored Latch switch).

6-2. Pull out the switch from the latch hook. Do not break the post or tab of the latch hook.

6-3. Now the switch is free.

Re-install

1. Re-install each switch in its place. The monitored latch switch is in the lower position and the monitor switch is in the middle position. The stop switch is in the upper position.
2. Re-connect wire leads to each switch. Refer to charter “Pictorial Diagram”.(page 32)
3. Secure latch hook (with one (1) mounting screw) to oven.
4. Re-install the control panel assembly to the oven cavity front flange.
5. Re-connect wire leads to the control unit. Refer to chapter “Pictorial Diagram”.(page 33).
6. Make sure that monitor switch is operating properly and check continuity of the monitor circuit. Refer to chapter “Test Procedure”, and Adjustment Procedure below.

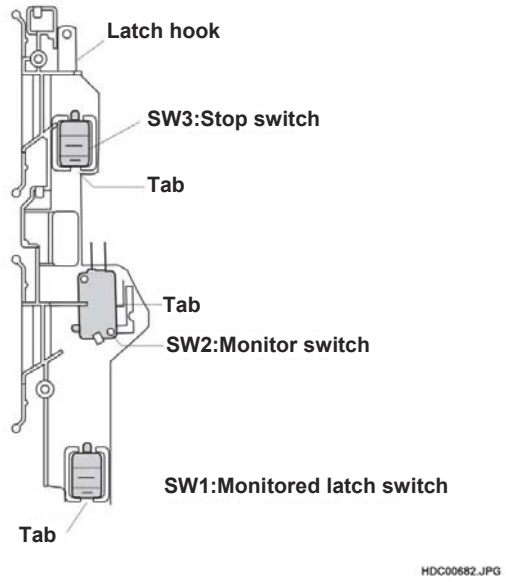


Figure C-2. Latch Switches Removal

MONITORED LATCH SWITCH, MONITOR SWITCH AND STOP SWITCH ADJUSTMENT

1. CARRY OUT 3D CHECKS.
If the monitored latch switch, stop switch and monitor switch do not operate properly due to a misadjustment, the following adjustment should be made.
2. Loosen the one (1) screw holding the latch hook to the flange of the oven front face.
3. With the door closed, adjust latch hook by moving it up and down. In and out play of the door allowed by the upper and lower position of the latch hook should be less than 0.5mm. The vertical position of the latch hook should be adjusted so that the stop switch and the monitored latch switch are activated with the door closed.
4. Secure the screws firmly.
5. Check the operation of all switches. If each switch has not activated with the door closed, loosen screw and ad just the latch hook position.

After adjustment, make sure of the following.

1. In and out play of the door remains less than 0.5mm when in the latched position.
2. The monitored latch switch and stop switch interrupt the circuit before the door can be opened.
3. The monitor switch contacts (COM-NC) close when the door is opened.
4. Re-install outer case and check for microwave leakage around the door with an approved microwave survey meter. (Refer to Microwave Measurement Procedure.)

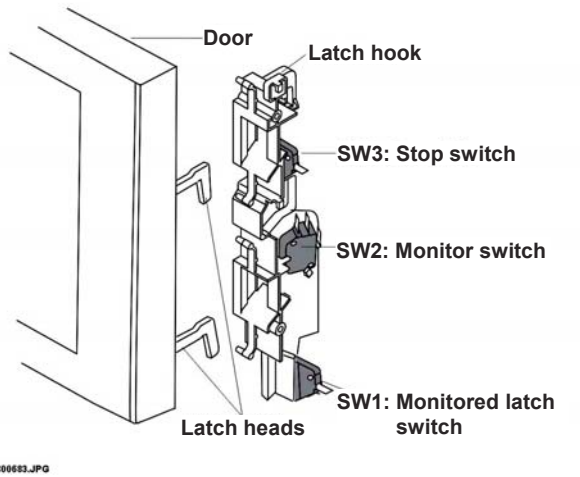


Figure C-3. Latch Switch Adjustments

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

REMOVAL

1. Disconnect the power supply cord.
2. Open the door slightly and remove the built in frame assembly(Ref: to chapter built in frame assembly removal).
3. Remove the choke cover taking care not to break clips by inserting an iron plate (thickness of about 0.5mm) or flat type screw driver to the gap between the choke cover and door panel as shown Figure C-4 to free the engaged parts.
4. Release choke cover from door panel.
5. Now choke cover is free.

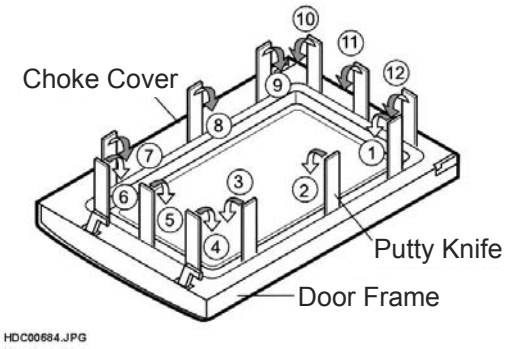


Figure C-4. Door Disassembly

6. Release two (2) pins of door panel from two (2) holes of upper and lower oven hinges by lifting up.
7. **Remove door assy by removing screws (4).**
8. Release door panel from tabs of door frame and remove door frame.
9. Now, door panel with inner sealer film is free.
10. Tear inner sealer film from door panel.
11. Now, door panel is free.
12. Slide latch head upward and remove it from door frame with releasing latch spring from door frame and latch head.
13. Now, latch head and latch spring are free.

RE-INSTALL

1. Re-install latch spring to the head. Re-install latch spring to the door frame. Re-install latch head to the door frame.
2. Re-install door panel to door frame by fitting tabs of door frame to holes of door panel.
3. Put sealer film on door panel. Refer to “Inner Sealer Film” and figure C-6, on how to handle the new film.
4. Catch two (2) pins of door panel on two (2) hole of upper and lower oven hinges.
5. Re-install choke cover to door panel by pushing.

Note: After any service to the door;

(A) Make sure that monitored latch switch, stop switch and monitor switch are operating properly. (Refer to chapter “Test Procedures , Switch Test page 17”.).

(B) An approved microwave survey meter should be used to assure compliance with proper microwave radiation emission limitation standards.

After any service, make sure of the following :

1. Door latch heads smoothly catch latch hook through latch holes and that latch head goes through center of latch hole.
2. Deviation of door alignment from horizontal line of cavity face plate is to be less than 1.0mm.
3. Door is positioned with its face pressed toward cavity face plate.
4. Check for microwave leakage around door with an approved microwave survey meter. (Refer to Microwave Measurement Procedure.)

Note: The door on a microwave oven is designed to act as an electronic seal preventing the leakage of microwave energy from oven cavity during cook cycle. This function does not require the door be air-tight, moisture (condensation)-tight or light-tight. Therefore, occasional appearance of moisture, light or sensing of gentle warm air movement around oven door is not abnormal and does not indicate leakage of microwave energy from the oven cavity.

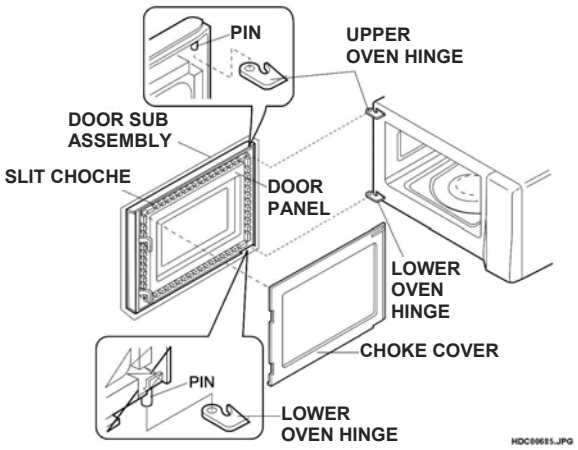


Figure C-5. Door Replacement

NOTE: When carrying out any repair to the door, do not bend or warp the slit choke (tabs on the door panel assembly) to prevent microwave leakage.

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

INNER SEALER FILM

Installation

1. Tear away the backing film.
3. Put the pasted side of the inner sealer film on the door panel.

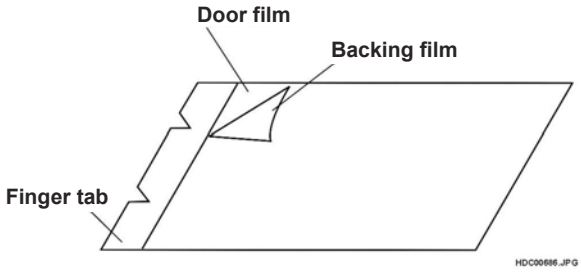


Figure C-6. Inner Sealer Film

MICROWAVE MEASUREMENT

After adjustment of door latch switches, monitor switch and door are completed individually or collectively, the following leakage test must be performed with a survey instrument and it must be confirmed that the result meets the requirements of the performance standard for microwave oven.

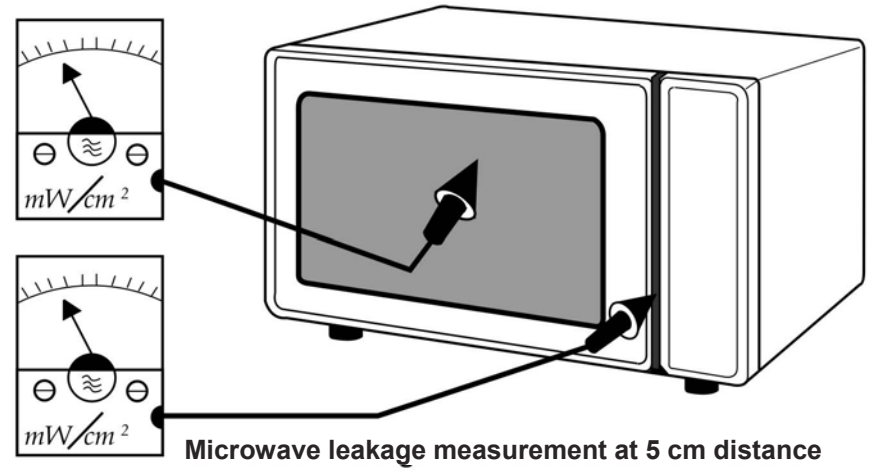
REQUIREMENT

The safety switch must prevent microwave radiation emission in excess of 5mW/cm2 at any point 5 cm or more from external surface of the oven.

PREPARATION FOR TESTING:

Before beginning the actual test for leakage, proceed as follows;

1. Make sure that the test instrument is operating normally as specified in its instruction booklet.
   Important:
   Survey instruments that comply with the requirement for instrumentations as prescribed by the performance standard for microwave ovens must be used for testing.
   Recommended instruments are:
   NARDA 8100
   NARDA 8200
   HOLADAY HI 1500
   SIMPSON 380M
2. Place the oven tray into the oven cavity.
3. Place the load of 275 ± 15ml of water initially at 20 ± 5°C in the center of the oven tray. The water container should be a low form of 600 ml beaker with inside diameter of approx. 8.5cm and made of an electrically non-conductive material such as glass or plastic.
   The placing of this standard load in the oven is important not only to protect the oven, but also to insure that any leakage is measured accurately.
4. Close the door and turn the oven ON with the timer set for several minutes. If the water begins to boil before the survey is completed, replace it with 275ml of cool water.
5. Move the probe slowly (not faster that 2.5cm/sec.) along the gap.
6. The microwave radiation emission should be measured at any point of 5cm or more from the external surface of the oven.



Microwave leakage measurement at 5 cm distance

TEST DATA AT A GLANCE

Parts	Symbol	Value / Data
Thermal cut-out (OVEN)	TC01	125°C
Oven lamp	OL	240-250V 25W
High voltage capacitor	C	0.91µF AC 2100V(EU)
		0.88µF AC 2100V(UK)
Magnetron	MG	Filament < 1Ω Filament – chassis ∞ ohm.
Power transformer	T	Filament winding < 1Ω Secondary winding Approx. 160Ω. Primary winding Approx. 2 Ω.
Fuse	F1	F8A 250V
thermal cut-out(Magnetron)	TC02	125°C

WIRING/RE-WIRING

WARNING: WIRING / RE-WIRING.
Before carrying out any work; carry out 3D checks.
1. Disconnect the supply
2. Door opened and wedge open.
3. Discharge the high voltage capacitor.

RE-WIRING.

Ensure the following:
1. Wires must not touch:
   a) High voltage parts.
      (Magnetron, high voltage transformer, high voltage capacitor and high voltage rectifier).

   b) Parts that become hot.
      (Heating elements, oven lamp, oven cavity magnetron and high voltage transformer).

   c) Sharp edges.
      (Bottom plates, oven cavity, waveguide flange, chassis support and other metallic parts).

   d) Movable parts.
      (Fan blade, any motor, switch).

2. Positive lock connectors are fitted correctly. Ensure the locking pin is located correctly.
3. Wires are connected correctly as per pictorial diagram.
4. No wire leads are trapped by the outer wrap.

SCHEMATIC DIAGRAMS

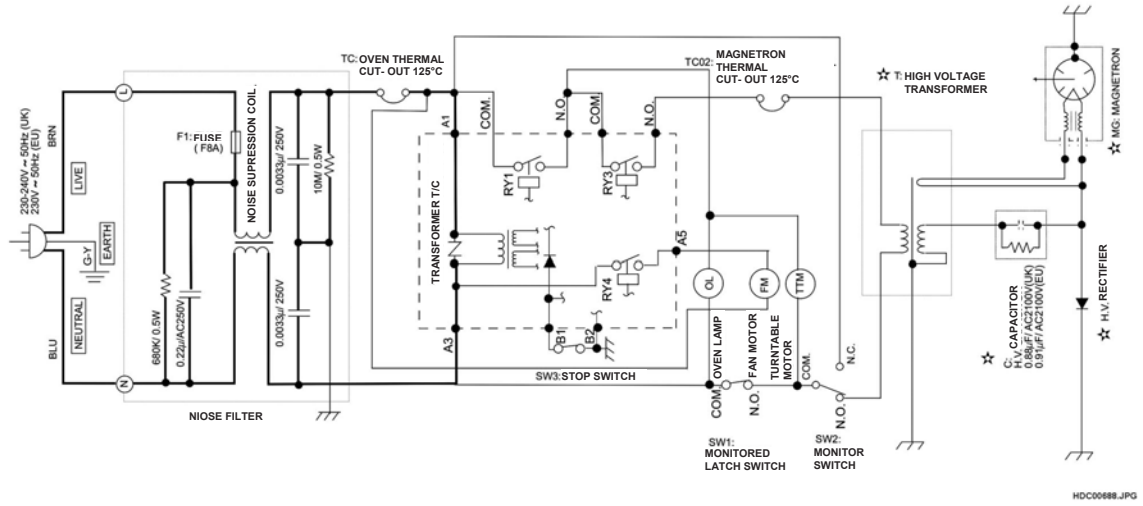


Figure 0-1 Oven Schematic-OFF Condition, Door Closed.

* INDICATES COMPONENTS WITH POTENTIAL ABOVE 250V

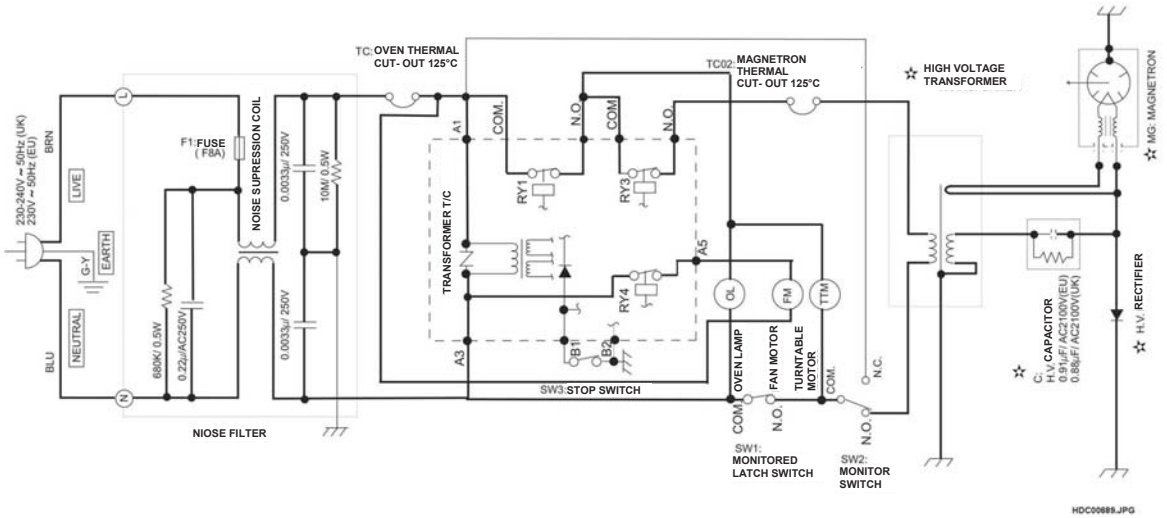


Figure 0-2 Oven Schematic-ON Condition, Door Closed.

PICTORIAL DIAGRAMS